

Technology in Literacy: A Vocabulary Flood: Making Words "Sticky" with Computer-Response Activities

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Source: *The Reading Teacher*, Vol. 60, No. 6 (Mar., 2007), pp. 582-588

Published by: Wiley on behalf of the International Literacy Association

Stable URL: <http://www.jstor.org/stable/20204507>

Accessed: 02-11-2016 18:26 UTC

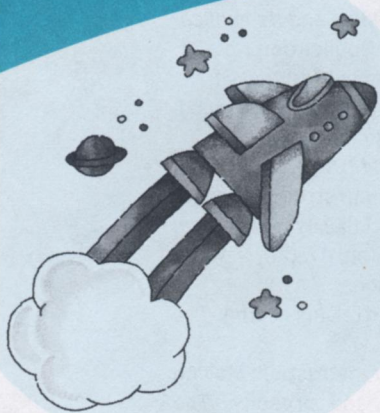
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## A vocabulary flood: Making words “sticky” with computer-response activities

Linda D. Labbo, Mary S. Love, Tammy Ryan

Children’s literature has been viewed as a primary source for introducing young children to new words (Sénéchal, 1997) in home or school settings (Biemiller, 1999). Children’s early vocabulary knowledge is a key component of oral language that is essential for comprehension (Perfetti, Marron, & Foltz, 1996). Nagy, Herman, and Anderson (1985) noted that most new vocabulary learned by a majority of children comes through indirect exposure to new words, as in storybook reading, and many young children gain impressive vocabulary knowledge from these endeavors. However, the focus of this column is not on most of the children for whom incidental exposure to words is sufficient to support vocabulary development. This column is focused on children from low socioeconomic backgrounds who frequently find themselves in a vocabulary crisis and how computer-related activities may play a role in tackling this problem. Furthermore, this column provides the background, rationale, and steps for using vocabulary flood—a five-day instructional cycle we developed that uses computer technologies and related activities.

### Background

It all began when the literacy coach from a local elementary school gave us an offer we couldn’t refuse:

We’re reading aloud wonderful children’s literature every day. We’re talking about the words in the stories and we’re asking them [the students] to connect story events to events in their own lives. All of these things should help our students gain vocabulary knowledge,

but that’s just not the case. What else can we do? Can you come over and help us figure out how to use our classroom computers to improve our vocabulary instruction?

We accepted the invitation and delved more deeply into the dilemma by considering the situation described by, Mrs. Bennet, a kindergarten teacher we worked with in a professional staff development study group.

The words they [the kindergarten students] should be learning just don’t seem to “stick.” I mean, I’m reading great storybooks aloud daily and even several times a day. We’re talking about the stories. They’re doing response activities, like drawing their favorite parts of the story and thinking about how events in their lives are like those in the stories. And, I’m always careful that I clarify any words in the story that might be confusing to the children, but it’s just not enough. What else can I do? We need to make those words stick!”

Clearly, Mrs. Bennet and the other teachers in the study group had hoped that taking the time to read aloud and talk about books would support their at-risk students’ vocabulary development (Dickinson, 2001). Many researchers have noted that learning vocabulary requires children to have multiple exposures to word meanings (Beck & McKeown, 2001; Blachowicz & Fisher, 2000) before they remember the words (Juel & Deffes, 2004). Learning vocabulary is especially important and sometimes difficult for low-income children because they are more likely to begin school with fewer word concepts than children from mid- to upper socioeconomic families. For example, Hart and Risley’s (1992) work on the vocabulary differences between children from low- and high-income



families indicated that at the age 36 months, higher socioeconomic status (SES) children had a vocabulary of about 1,000 words as compared to 500 words for children in lower SES families.

The students in the study attended the lowest SES demographic school in a district located in the southeastern United States. Of the 511 students attending the school, 96% received free or reduced-cost lunch, 30% were Hispanic, and 65% were African American. In addition, of the 85 K–2 students taking the Peabody Picture Vocabulary Test, a whopping 87% were below average (5th stanine) in receptive vocabulary scores and 76% were below average (5th stanine) in expressive vocabulary scores. The teachers we were working with decided there was a vocabulary crisis that must be reversed. They were not interested in any approach that would remediate or slow down the process of vocabulary acquisition. Thus, we decided to accelerate children's engagements with vocabulary words through a vocabulary flood intervention that included the use of digital cameras as a response to literature enhancement.

## Rationale

In the hands of a capable teacher, one who establishes an appropriate learning environment, computer activities can support children's conventional literacy development (McKenna, 1998). Computer screens are spaces for encountering multiple modes and forms of meaning making that converge in powerful ways to enhance children's language and literacy acquisition by making content memorable. For example, computer screen meaning making can involve multiple resources (New London Group, 2000) that include the linguistic (words, genres, syntax); visual (images, layouts, graphics); audio (narration, sound effects, music); gestural (video, animation); spatial (layouts, architectural design of programs); and multimodal (patterns of connections, hypertextual links, navigation through links).

Our own work on the Digital Language Experience Approach (D-LEA; see Labbo, Eakle, & Montero, 2002), an approach based on the Language Experience Approach (Allen, 1982), suggested that students of all ability levels can learn how to sequence events, generate high quali-

ty oral language, and use highly descriptive vocabulary when they discuss digital photos and arrange them in presentation software. As students represent their experiences through digital photographs, they also have occasions to recontextualize their knowledge of the experience, shaping new meaning because they are able to transform the original information into a new form. In other words, children reflect on, discuss, and compose more deeply when they use photographs of an experience to literally reframe and write about them. D-LEA consists of four steps: (1) setting up the experience, (2) photographing the experience, (3) composing a multimedia photo essay or story, and (4) engaging in follow-up activities.

Digital whiteboards are electronic dry erase boards that serve as an interactive touch screen/monitor when connected to a computer (Solvie, 2003). This important tool has the potential to contribute to literacy development because it provides a large (e.g., 60 inches) interactive presentation space that is easily viewed by all students. Any activity that may be accomplished on a computer screen may also be accomplished on a digital whiteboard. For example, touching the board with a finger performs the same function as clicking a mouse button. Work can be saved, printed out, or viewed on demand. Teachers can take students on virtual Internet field trips, or model how to access information and multimedia resources.

## Steps in a vocabulary flood

The primary focus of a vocabulary flood is to help children notice and recycle words. Indeed, the whole point of a vocabulary flood is to help children notice, nominate, and make meaningful words they encounter during teacher storybook read-alouds by thinking about them, talking about them, and using them in writing on multiple occasions. Table 1 presents the five steps of the instructional cycle and explains each step. It is worth noting that the notion of students' word recycling is an important component of, and the glue that connects, the activities that occur across the five-day instructional cycle. Keeping word recycling in mind helps teachers refrain from dominating book talk and encourages students to actively use the words on multiple occasions. The third step in the vocabulary

**TABLE 1**  
**Vocabulary flood instructional cycle**

	Teacher	Students
Day 1	<ul style="list-style-type: none"> <li>• Read aloud a book</li> <li>• Embed “word noticings”</li> <li>• Write student-nominated words on index cards or tag board tape on a thematic chart or a digital whiteboard</li> <li>• Display the chart in a central location</li> </ul>	<ul style="list-style-type: none"> <li>• Active listening</li> <li>• Discussion of story and connections</li> <li>• Select interesting words</li> </ul>
Day 2	<ul style="list-style-type: none"> <li>• Revisit the book</li> <li>• Highlight words on chart</li> <li>• Guide students’ connections</li> <li>• Regroup by word-to-word associations on the chart</li> </ul>	<ul style="list-style-type: none"> <li>• Recall story events</li> <li>• Word-to-text, word-to-self connections, and word-to-word connections</li> <li>• Label groups of word categories from the word-to-word connections</li> </ul>
Day 3	<ul style="list-style-type: none"> <li>• Quickly review words on chart</li> <li>• Develop and ask at least five true/false questions that use two to three of the words</li> </ul>	<ul style="list-style-type: none"> <li>• Read aloud words</li> <li>• Indicate true (thumbs up) or false (thumbs down) to questions</li> </ul>
Day 4	<ul style="list-style-type: none"> <li>• Direct small groups of students to retell the story</li> <li>• Take digital photos of reenactments</li> </ul>	<ul style="list-style-type: none"> <li>• Plan how to reenact the story</li> <li>• Use interesting words from chart during reenactment</li> <li>• Individually use words in student responses, journal writing (drawing or emergent writing for Pre-K and K) while small groups work with the teacher</li> </ul>
Day 5	<ul style="list-style-type: none"> <li>• Display photos on screen or in print outs</li> </ul>	<ul style="list-style-type: none"> <li>• Place photos in sequence of events</li> <li>• Dictate or write small-group retellings using words from the chart</li> <li>• Read D-LEA stories during Author’s Computer Chair</li> <li>• Celebrate ways new words helped everyone enjoy and understand the story</li> <li>• Send home copies of D-LEA stories</li> <li>• Place a hard copy in the class library</li> </ul>

flood process is also important because it involves students using a digital camera during the Digital Language Experience Approach (Labbo et al., 2002) to use the vocabulary words in personally meaningful ways.

### Vocabulary flood example

On the first day, Mrs. Bennet read aloud the storybook, *Ella Sarah Gets Dressed* (Chodos-Irvine, 2002). This delightful story unfolds through a series of conversations that the main character, Ella Sarah, has with family members as she de-

scribes the unusual outfit she plans to wear for the day. As Mrs. Bennet read, she embedded “word noticings” and helped students understand how the author’s words help readers make visualizations. After reading, the students engaged in the first level of word recycling by suggesting words for the teacher to write on a thematic word chart; the shape or title of the chart is related to a topic or theme from the storybook. In this case, the chart was shaped like a dress (see Figure 1). This form of graphic representation helps children have an overarching concept for the words listed on the chart. The teacher displayed the chart on a bulletin board

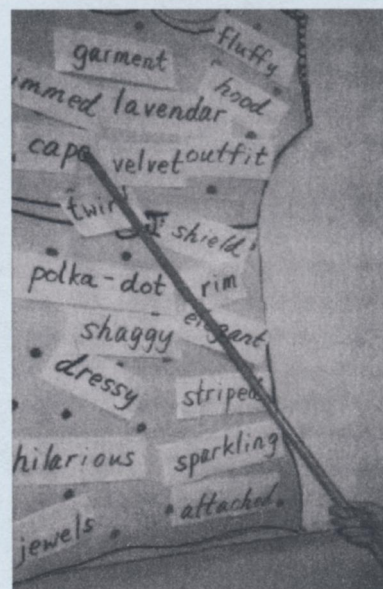
so children could do word recycling during free writing time.

On the second day, Mrs. Bennet invited students to talk about parts of the story that they enjoyed. The teacher reread the book aloud, once again inviting children to practice visualization techniques. Students recalled story events in a whole-group retelling. As the teacher reread and highlighted words on the thematic dress-shaped chart, she invited students to do word recycling by making word-to-text and word-to-self connections. Word-to-text connections involve students in reflecting on how the author used the word in the storybook. The teacher invited students to do word recycling by associating other words that have similar meanings, and she wrote those groups of words on another chart (see Figure 2). When children make word associations of this type, they have occasions to make words sticky by remembering them.

On the third day, Mrs. Bennet began storytime with a quick review of the words on the two charts—the thematic word chart and the word associations chart. Students did word recycling by reading the words aloud and saying something they knew about each word. The teacher asked four true or false questions that used several of the words. For example, a false question might read, “A good dress to wear for playing outside should be made of velvet lavender trimmed with sparkling jewels.” A true question might read, “A clown would wear a hilarious hat with lavender polka dots and a fluffy cape.” Students recycled word knowledge by indicating with a visual thumbs-up signal for true or a thumb down signal for false.

To prepare students for a Digital Language Experience Approach activity (Labbo et al., 2002), Mrs. Bennet brought in a large tub of dress-up clothes on the fourth day. Before holding up a piece of clothing, she described it and asked students to close their eyes and visualize the garment, just like Ella Sarah’s family members had to visualize her outfit through a word description in Chodos-Irvine’s book (2002). Then she held up the piece of clothing so students could see if their visualization was on target. Each student selected and dressed up in an outfit from the tub of dress-up clothes. The teacher took digital photos of each child in their outfits.

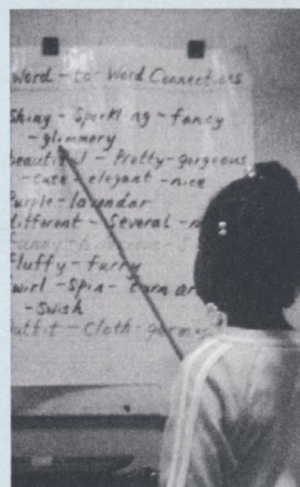
**FIGURE 1**  
Thematic word chart (dress)



Note. Photograph by Ann Benedek.

On the fifth and final day, Mrs. Bennet displayed each student’s photo, which had been imported into a PowerPoint format on a digital

**FIGURE 2**  
Word associations chart



Note. Photograph by Ann Benedek. The chart reads shiny-sparkling-fancy-glimmery; beautiful-pretty-gorgeous-cute-elegant-nice; purple-lavendar; funny-hilarious-silly; fluffy-furry; twirl-spin-turn around-swish; outfit-cloth-garment.

**FIGURE 3**  
**Dress-up D-LEA photograph**



*Note.* Photograph by Ann Benedek.

whiteboard screen. Each student dictated descriptions of his or her clothing (see Figure 3). Most of the students used new vocabulary words to describe their outfits, but many were also able to recycle words from the charts. Students reread their labeled pictures during Author's Computer Chair (Labbo, 2004)—a sharing time that focuses on the processes of computer-generated composition. Students recycled words during the rereadings of their D-LEA labeled photos (Labbo et al., 2002).

Mrs. Bennet and her students discussed and celebrated all of the ways that the new words helped everyone enjoy and understand the story. Mrs. Bennet sent home printed copies of D-LEA (Labbo et al., 2002) stories so children could continue to recycle words with their families. Finally, she placed a hard copy in the class library so children could reread and recycle words during free reading time.

## Findings

Just four months after participating in the vocabulary flood instructional cycle, Mrs. Bennet was

delighted with her students' ability to generate rich lists of associated word groupings. She was impressed with the ease of using computer-response activities, such as D-LEA (Labbo et al., 2002), to positively affect students' vocabulary development. Students were talking about words more, and using richer words in their writing.

Quantitative analysis showed impressive gains overall for the 85 students involved in the project. Data on students' vocabulary knowledge from before and after the vocabulary flood was measured by the Peabody Picture Vocabulary Test III (PPVT) and the Expressive Vocabulary Test III (EVT). Pretest scores on PPVT showed only 13% of students at or above the 5th stanine (average) before the vocabulary flood, but 39% of students were at or above the 5th stanine (average) after the intervention. Thus, students showed a gain of 26% on receptive vocabulary knowledge. Pretest scores on the EVT showed only 24% of students at or above the 5th stanine (average) before the vocabulary flood, but 57% of students were at or above the 5th stanine (average) after the intervention. Thus, stu-



dents showed a gain of 33% on expressive vocabulary knowledge.

## Final thoughts

It is necessary for teachers to do more than simply read aloud lots of books to children who are low in vocabulary knowledge because they are likely to remain low in vocabulary knowledge unless additional instructional activities are implemented (Cunningham & Stanovich, 1997). Ultimately, when children know more vocabulary words and integrate them into their expressive vocabularies, they are able to better comprehend text (National Institute of Child Health and Human Development, 2000). Oral language development is also crucial to success in school—it is a springboard for making the transition from oral to written forms of communication (Biemiller, 2003). Computer response to literature activities, such as D-LEA (Labbo et al., 2002), that are conducted on digital whiteboards, provide unique occasions for all of the children in a classroom to engage in oral language and to learn new vocabulary.

It is our belief that the vocabulary flood and D-LEA (Labbo et al., 2002) activities allowed teachers in the intervention to more effectively focus students' attention on visual representations of vocabulary terms. Students became analytical when viewing photographs as they talked and wrote about their own experiences that related to the original story text. These reflective moments allowed students to connect with nuances of word meanings. Many of the D-LEA activities invited students to step into fictional narrative situations (e.g., playing dress up like a story character) or nonfiction informational concepts (e.g., following a recipe). This shift in student stance fostered deep processing and created unique occasions for students to recycle vocabulary words in ways that made the words sticky.

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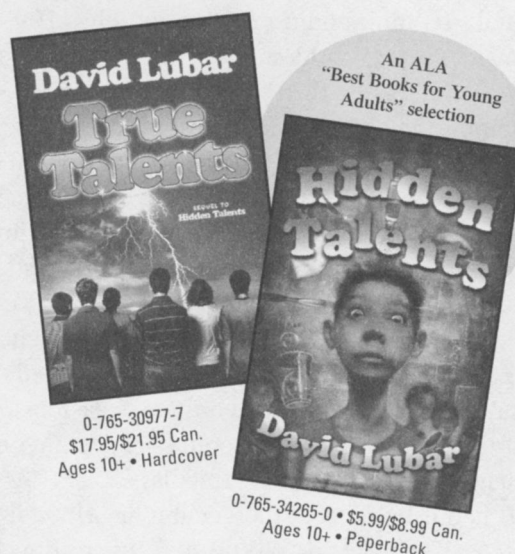
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